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Mark F Smith 905 Ohio Pike Cincinnati, OH 45245				
EXAMINER				
FLEISCHER, MARK A				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/693,790

Applicant(s)

WILSON, THOMAS W.

Examiner

MARK A. FLEISCHER

Art Unit

3624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-893)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Status of Claims

1. This second Non-Final Office action is in reply to the first Non-Final rejection, the reply from Applicant having been filed on 23 June 2008.
2. Claims 1, 2, 6-11, 16-18, 20, 21 and 23 have been amended.
3. Claims 1-23 are currently pending and have been examined.

Response to Amendment

4. The objections to the drawings are withdrawn in light of Applicant's amendments.
5. The rejections of claims 1, 9, and 11 under 35 U.S.C. §112, second paragraph are withdrawn in light of Applicant's arguments and amendments. The rejection of claim 21 under 35 U.S.C. §112, second paragraph, however, is maintained as indicated below.

Response to Arguments

6. Applicant's arguments received on 23 June 2008 have been fully considered but they are not persuasive. Referring to the previous Office action, Examiner has cited relevant portions of the references as a means to illustrate the systems as taught by the prior art. As a means of providing further clarification as to what is

taught by the references used in the first Office action, Examiner has expanded the teachings for comprehensibility while maintaining the same grounds of rejection of the claims, except as noted above in the section labeled "Status of Claims." This information is intended to assist in illuminating the teachings of the references while providing evidence that establishes further support for the rejections of the claims.

7. In response to Applicant's argument that there is no teaching, suggestion or motivation to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).
8. To this end, the Examiner recognizes that references cannot be arbitrarily altered or modified and that there must be some reason why one skilled in the art would be motivated to make the proposed modifications. Although the motivation or suggestion to make modifications must be articulated, it is respectfully submitted that there is no requirement that the motivation to make modifications must be expressly articulated within the references themselves. References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures, *In re Bozek*, 163 USPQ 545 (CCPA 1969). Thus, the issue

of obviousness is not determined by what the references expressly state but by what they would reasonably suggest to one of ordinary skill in the art, as supported by decisions in *In re Delisle* 406 Fed 1326, 160 USPQ 806; *In re Kell, Terry and Davies* 208 USPQ 871; and *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ 2d 1596, 1598 (Fed. Cir. 1988) (citing *In re Lulu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1988)). Moreover, it was determined in *In re Lamberti et al* 192 USPQ 278 (CCPA) that:

- (i) obvious does not require absolute predictability;
- (ii) non-preferred embodiments of prior art must also be considered; and
- (iii) the question is not express teaching of references but what they would suggest.

9. According to *In re Jacoby*, 135 USPQ 317 (CCPA 1962), the skilled artisan is presumed to know something more about the art than only what is disclosed in the applied references. Within *In re Bode*, 193 USPQ 12 (CCPA 1977), every reference relies to some extent on knowledge of persons skilled in the art to complement that which is disclosed therein. In *In re Conrad* 169 USPQ 170 (CCPA), obviousness is not based on express suggestion, but what references taken collectively would suggest.
10. In the instant case, and despite the very well articulated arguments of the Applicant, the Examiner finds Applicant's arguments unpersuasive and respectfully notes that each and every motivation to combine the applied references is accompanied by select portions of the respective references which

specifically support that particular motivation. As such, it is NOT seen that the Examiner's combination of references is unsupported by the applied prior art of record. Rather, it is respectfully submitted that explanation based on the logic and scientific reasoning of one ordinarily skilled in the art at the time of the invention that support a holding of obviousness has been adequately provided by the motivations and reasons indicated by the Examiner, *Ex pane Levengood* 28 USPQ 2d 1300 (Bd. Pat. App. & Inter., 4/22/93).

11. With regard to the limitations of claims 1, 11, 21 and 23, Applicant argues that neither McCartney nor Wong teach the "the specific and essential step of identifying a Start Time and forming at least one Cohort time segment" based on the segment and conducting the sundry analyses thereon (Remarks, p. 25). Applicant further maintains that Examiner has confused the notions of "a time window" with that of a "Cohort time segment" (Remarks, p. 26) and, further, that the associated criteria as to whether an entity is included into a cohort is "arbitrary [*sic*] assigned by the operator" (Remarks, p. 26). This latter however misconstrues how the 'start time' is determined in Wong. Although some aspects of it are determined 'arbitrarily' as in "B can be selected somewhere in between..." (Wong [14,3-4]), other aspects of the time window determination and inclusion in a cohort are based on specified criteria. Specifically, the time point A "is defined based on the data extraction protocol... and C is defined by the last day for which the member is still enrolled and eligible for the benefits." (Wong, [14,5]). Moreover, the definition of time point B in Wong is specifically amenable

to "alternative definitions [that] may also be used." (Wong [14,16]). Such time windows and time frames are based on information in data files such as "Date of first CHF diagnosis...Date of first CHF hospitalization...Date of first diabetes event..." (Wong [8,51-55]). These are examples of the many types of longitudinal and cohort statistical studies that are based on what are analogous to the instant "cohort time". Indeed, the establishment of relevant time frames based on membership criteria for inclusion in a cohort as the basis of statistical analyses is old and well-known, especially in the medical arts and sciences where the progression of disease, effectiveness of drug regimens and so forth are studied.

12. In summary, the Examiner has taken the broadest and most reasonable interpretation of the claim limitations as *written*, in light of the specification. Although the specification may contain recitations of intended use, alternative points of view and subjective interpretative differences between the prior art of record and the present invention as premeditated, it is the claims themselves that are given patentable weight only inasmuch as they are constructed.

Claim Objections

13. Claims 1, 11 and 23 objected to because of the following informalities: The claims use incorrect grammar in terms of singular or plural instances of the word "criteria". The singular form, is appropriate in claims 1 and 11 which use the plural form, and the plural form is used incorrectly in claim 23 ("having a eligibility

criteria..." which should read either as "having eligibility criteria" or "having an eligibility criterion"). Appropriate correction is required.

14. Claim 20 is objected to because of the following informalities: The claim recites *calculating an O per UOA-ID* and appears to be a typographical error. Appropriate correction is required.

Claim Rejections - 35 USC § 112

15. The following is a quotation of the second paragraph of 35 U.S.C. §112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 20 and 21 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
- Claim 20 recites the limitation *...calculating an O per UOA-ID...* There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, Examiner interprets this as meaning *Output per UOA-ID*.
 - Claim 21 recites the limitation *...to be included into the population...* There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

17. 35 U.S.C. §101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

18. Claims 1–8 and 26 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Based on Supreme Court precedent, and recent Federal Circuit decisions, the Office's guidance to examiners is that a §101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876). An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a §101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 1–23 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCartney (US PG-Pub 2003/0065534 A1) in view of Wong (US 5,976,082 A).

Claim 1:

McCartney, as shown, discloses and/or describes the following limitations:

- *A method of improving resource allocation* (McCartney [0002]: "...and allows for optimized allocation of health care resources.") *comprising the steps of:*
 - *identifying at least one criteria* (McCartney [0030] "...all patients with appendectomy..." where this constitutes a 'criterion');
 - *identifying sets of information wherein each set of information includes*
 - *a UOA-ID* (Applicant on page 10, line 12: ...*means the particular individual UOA entity involved in the study* and further provides examples on line 15 as *patients having a common diagnosis or condition...* McCartney [0039] also describes a Patient Group: "...for example all patients who had a simple appendectomy are in a Patient Group."),
 - *a CCT* (Applicant on page 10, line 8 refers to *calendar clock date/time*. McCartney [0003] refers to dynamic periods of time for given situations: "For example a person admitted to a hospital []

will generally require operating room **time**, recovery ward **time**..." and further describes in [0004] patients that must be "tracked virtually on a real **time** basis"),

- a *CATVAR* (Applicant on page 5, line 11 refers to a *Categorical Variable to enable* stratification of data. McCartney, in at least [0030], refers to the notion of class and cohort: "Another class of Patient Group includes patients of a similar age group with a similar diagnosis; other potential groups also exist, for example all patients with appendectomy and diabetes as a complicating diagnosis--in a **statistical** sense, a Patient Group is a **cohort**." McCartney in at least [0057] further uses the term 'category' as in "...Patient Groups falling, within a category of cases...") and a
- *VAR Value* (Applicant on page 11, line 22 defines *VAR Value* and on page 14 line 9-12 provides examples. McCartney, in at least [0064-5] also refers to various values associated with resource allocation decisions and modules that determine them: "generating the case cost profile rather than the adjusted values.");
- *grouping each UOA-ID into an appropriate Type* (Applicant defines *Type* on page 10, line 21. McCartney in at least [0026] describes this same limitation: "the grouping systems in different countries generally use the same approach to grouping disease and treatment case types." Emphasis added.);

- *calculating an Eligible Adjusted Variable Value* (McCartney, in at least [0064-5] states: "...to reconcile [] case costing data available [], resulting in adjusted cost ..." (emphasis added) where adjusted cost corresponds to *Adjusted Variable Value.*); and
- *generating at least one Output Expression that can be subdivided by each CATVAR* (Applicant on page 7 generally describes this in terms of various economic indicators for each relevant category of analysis where output analysis is subdivided into groups corresponding to a particular set of category variables or indices and (on page 19, line 14) *show[s] a relationship between one or more of the Summary Metrics.* McCartney, in at least [0171] states: "The output generated by applying the model is a file containing a list of all of the CHF patients ordered by an indicator representative of the likelihood that that patient will have an adverse health outcome (i.e., experience that defined by the dependent variable). This list can then be divided into subgroups such as in 5% or 10% increments of patients likely to have the adverse health outcome..." (emphasis added) where the aforementioned 'indicator' corresponds to a CATVAR.) It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the resource allocation method of McCartney with Wong's recitation of time-dependent variables because each pertain to the statistical analysis of health care systems and disease management issues and

seek to identify ways to improve the efficiency of healthcare delivery systems.

McCartney does not specifically include the following limitations, but Wong, in an analogous art, does as shown.

- *identifying a Start Time* (Applicant defines the *start time* generally as the time at which group membership criteria are satisfied. Wong, in at least [8,48] states: "First available date of enrollment (i.e., start of dataset or enrollment date) [] Date of first CHF diagnosis (ICD-9 code in any position)..." *wherein each UOA-ID has met said at least one criteria* (see the preceding text viz a vis [8,48] in Wong. Examiner takes **Official Notice** that it is old and well-known as well as common place in the medical sciences to determine the start time (or date) associated with the beginning of a certain condition or treatment regimen or other time-based event.);
- *forming at least one prospective or retrospective* (see Wong [13,51] regarding time periods for "analysis" and "prediction") "*Cohort time segment for each UOA-ID based on their Start Time* (Wong, in at least the abstract states: "A time window is defined to provide a timeframe from which to judge whether events should be considered in subsequent processing..." where 'time window' is equivalent to a *Cohort time segment*.);

- *placing the UOA-ID into the appropriate time segment* (Wong in at least [4,66] states: "...the time window is used to identify an analysis region..." and in [2,63] "...using the time window and the set of variables, to generate an analysis file..." (emphasis added) The method of 'using the time window' is thus equivalent to the limitation in that the set of variables is associated with the particular time window. This association corresponds to the relevant *UOA-ID* that is associated with *the appropriate time segment*);
- *calculating an eligibility score for each UOA-ID for each time segment* (Applicant refers to *eligibility score* on page 15, line 24 as corresponding to the timeframe in which a unit of analysis is available for study *both prospectively and retrospectively* and further provides an example where the score is given in terms of months. Wong, in at least [14,35] describes the use of analysis weights associated with time windows: "...analysis weights which reflect proximity to the event to be predicted can be used, for example, within 3 months \times 1, 3-6 months \times 0.75 ...");

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis. Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using 'time windows'. Such time based analyses, as suggested in the Examiner's **Official Notice** above, provides insight into the

effectiveness of decisions or the time evolution of characteristics associated with either a patient or other entity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (e.g., patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Claims 2 and 12:

McCartney/Wong disclose the limitations as shown in the rejections above.

Furthermore, McCartney as shown, discloses and/or describes the following limitations:

- *The method of claim 1 further comprising the step of transforming the Output Expressions from being expressed in Cohort time segments...*

(McCartney, in at least [0003], describes various types of cohort time:

"They will generally require operating room **time**, recovery ward **time**...")

McCartney does not specifically include the following limitations, but Wong, as shown does.

...to being expressed in CCT segments that are subdivided by each CATVAR (Wong, in at least claim 1, states a step which includes: "converting data representing the extracted claims information and the defined events into files containing event level information". This conversion process is equivalent to a transformation of *cohort time segments* to *CCT segments* because CCT segments pertain to the times at which events occur. Moreover, in at least [0048] specifically states "the information is converted into an event level format." Finally, in [0051], Wong states: "Primary data file 2 is an events level file with a record for each event ordered by member and the chronological date of the event, in the present invention, presented in descending order of event date." Emphasis added. Finally, Wong's invention describes a host of category indicators. See *e.g.*, [0072]-[0104].)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the statistical methods of McCartney and Wong because translating time periods associated with conditions to absolute or calendar time facilitates the ability of analysts to make meaningful assessments of resource utilization and discern trends in the data.

Claims 3 and 13:

McCartney/Wong disclose the limitations as shown in the rejections above. McCartney/Wong do not specifically disclose *wherein said method is performed using a system comprising a central processing unit for implementing system software effective for performing the method*. However, the Examiner takes **Official Notice** that it is old and well-known as well as commonplace in the technical and medical arts to utilize computer systems comprising a central processing unit along with system software to perform method or algorithmic steps or procedures in data intensive environments. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to utilize a central processing unit along with system software because their use enables the practical utility by increasing the efficiency and reliability of the resource allocation system.

Claim 4:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 that is used for health care applications.* (See the rejection of claim 1. Note both references teach applications in the health care field.)

Claim 5:

McCartney and Wong, as shown, disclose and/or describe the following limitations:

- *The method of claim 1 wherein said method is used for applications selected from the group consisting of warranty applications, actuarial applications, insurance applications, marketing and advertising applications, frequent use program applications, shopping card applications, trademark/trade dress/product design evaluation applications, web page applications, infringement applications, and health care applications* (See the rejection of claim 4 above).

Claim 6:

McCartney, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein each Output Expressions is generated by the method comprising the step of calculating an EAV based on a summary metric for each UOA-ID per Type subdivided by each CATVAR* (See the rejection of claim 1. This claim combines several limitations of claim 1.)

Claim 7:

McCartney, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein each Output Expression is generated by the method comprising the steps of:*
 - *determining a DV per Type per time segment* (See Wong, in at least [0150]: "...this is a dichotomous variable..." (emphasis added) See also the rejection of claim 1 above and Examiner's Official Notice below);

- *calculating an EAV summary metric for all UOA-IDs per Type per time segment* (See the rejections of claim 1 and 6 above); *and*
- *calculating an EAV Net Value per Type per time segment subdivided by each CATVAR* (See the rejections of claims 1 above and the Examiner's **Official Notice** below. See also Wong, in at least [0150]: "...this is a dichotomous variable referred to as the High Cost indicator such that if the patient, for example, is in the top 10%, High Cost=1, otherwise High Cost=0.")

Neither McCartney nor Wong specifically describe the limitations regarding a *DV per time segment*, but the 'DV', being a 'dichotomous variable' (see page 24, line 2) is simply a Boolean value that is used to stratify the data. Examiner's takes **Official Notice** that it is well known and commonplace in the statistical analysis arts to employ the use of various types of stratified sampling techniques. These strata are, by definition, mutually exclusive. Applicant employs the term 'DV' to define two mutually exclusive sets of values depending on the context which in Wong also involves a time-based aspect (see Wong in at least [0150]: "Resources counted from time of cost..."). Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to use a Boolean technique for stratifying data in conjunction with the health care and disease management methods of McCartney and Wong because many types of data must be either included in an output analysis or excluded from it in order to make the analysis meaningful.

Claim 8:

McCartney, as shown, discloses and/or describes the following limitations:

- *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 1 relative to the EAV calculation and the limitation therein on use of the CATVAR); *and*
- *calculating the maximum available RA per UOA-ID per time segment subdivided by each CATVAR* (See the rejection of the limitation above regarding RORA. Note, that McCartney, in at least [0053], refers to "relative resource weightings" in which it is fairly implied that a weighting of 1 corresponds to the maximum weight, hence corresponds to the instant limitation.)

McCartney does not specifically include the following limitations, but Wong, in an analogous art, does as shown.

- *The method of claim 1 wherein each Output Expressions is generated by the method comprising the steps of:*
 - *determining a RORA* (Wong, in at least [0150] wherein "resource utilization is measured in dollars." 'Resource utilization' is thus equivalent to *return on resource allocation*' (RORA));
 - *determining an Outcome* (See the rejection of claims 1 and 11);
 - *calculating a NNT* (See the rejection of claim 23. Wong, in at least [0002] describes his invention in terms of "targeted interventions"

relative to congestive heart failure patients and thus requires the determination of the *number needed to target (NNT)*.)

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis. Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using 'time windows'. Such time based analyses, as suggested in the Examiner's **Official Notice** above, provides insight into the effectiveness of decisions or the time evolution of characteristics associated with either a patient or other entity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (*e.g.*, patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Claim 9:

McCartney/Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein each Output Expressions is generated by the method comprising the steps of:*
 - *determining a RA* (See the rejection of claim 8.);
 - *determining an Outcome* (See the rejection of claim 8.);
 - *calculating a NNT* (See the rejection of claim 8.);
 - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8.); and

- *calculating the RORA per UOA-ID per time segment subdivided by each CATVAR* (See the rejection of claim 8. Note that claim 8 refers to *determining a RORA* whereas here, this calculation is based on an stratified data. However, other limitation in claim 8 effectively address this stratification and this claim is merely a rearrangement of the limitations in claim 8.).

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis. Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using 'time windows'. Such time based analyses, as suggested in the Examiner's **Official Notice** above, provides insight into the effectiveness of decisions or the time evolution of characteristics associated with either a patient or other entity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (e.g., patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Claim 10:

McCartney/Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 1 wherein each Output Expressions is generated by the method comprising the steps of:*
 - *determining a RORA* (See the rejection of claim 8.);

- *determining a RA* (See the rejection of claim 8.);
- *calculating a NNT* (See the rejection of claim 8.);
- *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8.); *and*
- *calculating an Output UOA-ID per time segment subdivided by each CATVAR* (See the rejection of claim 8.).

As noted in the rejection of claims 1, 11, 21 and 23 above, it would have been obvious to one with ordinary skill in the art at the time of the invention to combine the methods of McCartney with the invention of Wong, in view of the Examiner's **Official Notices**, because they pertain to the statistical analysis of health care systems and disease management issues and seek to identify ways to improve the efficiency of healthcare delivery systems.

Claim 11:

McCartney, as shown, discloses and/or describes the following limitations:

- *A method for improving resource allocation using a plurality of sets of information* (See the preamble to the rejection of claim 1. Note also that *plurality of sets* is redundant and therefore equivalent to *identifying sets of information* as in claim 1), *the method comprising the steps of:*
 - *for each set of information, identifying*
 - *an UOA-ID* (See the rejection of claim 1),
 - *a Type* (Applicant on page 10, line 21 defines *Type*. McCartney, in at least [0026] describes a "classification system" where elements of

defined groups must meet certain criteria for inclusion in the relevant group.),

- a CCT (See the rejection of claim 1) and
- a VAR Value (See the rejection of claim 1);
- *grouping each UOA-ID into an appropriate Grouper* (McCartney in at least [0030] refers to examples of groups and subgroups of patients. In [0026] McCartney specifically refers to "grouping systems" and thus corresponds to a Grouper);
- *identifying a Start Time wherein said Start time is the earliest CCT for each specific UOA-ID per Type* (See the rejection of claim 1);
- *placing each AdjVAR Value into the appropriate time segment* (McCartney in at least [0009] states: "a health care resource profiling system that includes a [] database [] quantifying a total use of a health care resource [] during a predefined time period..." where the notion of 'predefined' circumscribes time segments, and *ipso facto* an appropriate time segment.);
- *calculating an eligibility score for each UOA-ID* (See the rejection of claim 1); and
- *generating Output Expressions per CATVAR values which are compared to each other* (See the rejection of claim 1 and Examiner's Official Notice below).

McCartney does not specifically include the following limitations, but Wong, in an analogous art does as shown.

- *identifying a time segment duration* (Wong in at least [0167] refers to "length of stay");
- *forming time segments based on the Start Time* (Wong in at least [0017] describes the acts of : "defining a **time window** for providing a timeframe" where 'defining' is equivalent to *forming*) *wherein each UOA-ID meet a certain eligibility criteria* (see Wong [8,48] Examiner takes **Official Notice** that it is old and well-known as well as common place in the medical sciences to determine the start time (or date) associated with the beginning of a certain condition or treatment regimen or other time-based event.);
- *adjusting and standardizing each VAR Value to create AdjVAR Values* (See the rejection in claim 1 of the limitation component *VAR Value* that specifically mentions "adjusted values");

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis. Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using 'time windows'. Such time based analyses, as suggested in the Examiner's **Official Notice** above, provides insight into the effectiveness of decisions or the time evolution of characteristics associated with either a patient or other entity. Therefore, it would have been obvious to one of

ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (e.g., patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Claim 14:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 that is used for health care applications (See the rejection of claim 11. Note both references teach applications in the health care field.)*

Claim 15:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein said method is used for applications selected from the group consisting of warranty applications, actuarial applications, insurance applications, marketing and advertising applications, frequent use program applications, shopping card applications, Internet applications, trademark/trade dress/product design evaluation applications, infringement applications, and health care applications (See the rejection of claim 14.).*

Claim 16:

McCartney, as shown, discloses and/or describes the following limitations:

The method of claim 11 wherein each Output Expression is generated by the method comprising the step of

- *calculating an EAV based on a summary metric for each UOA-ID per Type and Output Expression per CATVAR values which are compared to each other (See the rejection of claim 6.).*

Claim 17:

McCartney, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein each Output Expression is generated by the method comprising the steps of:*
 - *determining a DV per Type per time segment (See the rejection of claim 7);*
 - *calculating an EAV summary metric for all UOA-IDs per Type per time segment (See the rejection of claim 7); and*
 - *calculating an EAV Net Value per Type per time segment and Output Expression per CATVAR values which are compared to each other (See the rejection of claims 7 and 11 above.).*

Claim 18:

McCartney, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein each Output Expression is generated by the method comprising the steps of:*
 - *determining a RORA (See the rejection of claim 8.);*
 - *determining an Outcome (See the rejection of claim 8.);*

- *calculating a NNT* (See the rejection of claim 8.)
- *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8.); *and*
- *calculating the maximum available RA per UOA-ID per time segment and Output Expression per CATVAR values which are compared to each other* (See the rejection of claims 8 and 11 above).

Claim 19:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein an Output Expression is generated by the method comprising the steps of:*
 - *determining a RA* (See the rejection of claim 9);
 - *determining an Outcome* (See the rejection of claim 9);
 - *calculating a NNT* (See the rejection of claim 9);
 - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 9); *and*
 - *calculating the RORA per UOA-ID per time segment and Output Expressions per CATVAR values which are compared to each other* (See the rejection of claim 9. See also the Examiner's **Official Notice** in the rejection of claim 11 regarding the comparison of data.).

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis.

Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using 'time windows'. Such time based analyses, as suggested in the Examiner's **Official Notice** above, provides insight into the effectiveness of decisions or the time evolution of characteristics associated with either a patient or other entity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (e.g., patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Claim 20:

McCartney and Wong, as shown, discloses and/or describes the following limitations:

- *The method of claim 11 wherein an Output Expression are generated by the method comprising the steps of:*
 - *determining a RORA* (See the rejection of claim 8);
 - *determining a RA* (See the rejection of claim 8. Note that in claim 8, the modifier *maximum* is, but the pertinent art nevertheless is relevant as the capability to determine an *RA* must be employed to assess the maximum value.);
 - *calculating a NNT* (See the rejection of claim 8);
 - *calculating an EAV Net Value per Type per time segment* (See the rejection of claim 8); and

- *calculating an O per UOA-ID per time segment and Output Expressions per CATVAR values* (See the rejection of claim 10.)

McCartney and Wong do not specifically disclose the limitation of *which are compared to each other*. However, the Examiner takes **Official Notice** that it is old and well-known in the statistical and medical arts to compare data against a benchmark or standard. Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify the methods of McCartney/Wong because making comparisons of data obtained by these inventions enable effective assessments in healthcare delivery systems. See also the Examiner's rejection of claim 2 above.

Claim 21:

McCartney, as shown, discloses and/or describes the following limitations:

A system for use by a user in optimizing resource allocation comprising (See the rejections of claims 1 and 11):

- *a central processing unit for operating software effective for performing the method of* (See the rejections of claims 3 and 13 below):
- *identifying sets of information wherein each set of information includes*
 - *an UOA-ID,*
 - *a CCT, and*
 - *a VAR Value* (See the rejections of claims 1 and 11);
- *grouping each UOA-ID into an appropriate Type* (See the rejection of claim 1);

- *placing the VAR Value into the appropriate time segment* (See the rejections of claims 1 and 11);
- *calculating an Eligible Adjusted Variable Value* (See the rejections of claim 1);
- *and generating Output Expressions per CATVAR values which are compared to each other* (See the rejections of claims 1 and 11).

McCartney does not specifically include the following limitations, but Wong, in an analogous art, does as shown.

- *identifying a Start Time wherein each UOA-ID meets all of the eligibility criteria to be included in the population* (See the rejections of claims 1 and 11. Examiner takes **Official Notice** that it is old and well-known as well as common place in the medical sciences to determine the start time (or date) associated with the beginning of a certain condition or treatment regimen or other time-based event.);
- *forming at least one Cohort Time segment based on the Start Time* (See the rejections of claim 1);
- *calculating an eligibility score for each UOA-ID for each time segment* (See the rejections of claims 1 and 11);

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis. Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using 'time windows'. Such time based analyses, as

suggested in the Examiner's **Official Notice** above, provides insight into the effectiveness of decisions or the time evolution of characteristics associated with either a patient or other entity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (e.g., patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Claim 22:

McCartney and Wong, as shown, disclose and/or describe the following limitations:

- *The system of claim 21 wherein said method is used for applications selected from the group consisting of warranty applications, actuarial applications, insurance applications, marketing and advertising applications, frequent use program applications, shopping card applications, Internet applications, trademark/trade dress/product design evaluation applications, infringement applications, and health care applications (See the rejection of claim 21. Note both references teach applications in the health care field.).*

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis. Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using 'time windows'. Such time based analyses, as suggested in the Examiner's **Official Notice** above, provides insight into the effectiveness of decisions or the time evolution of characteristics associated with

either a patient or other entity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (e.g., patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Claim 23:

McCartney, as shown, discloses and/or describes the following limitations:

A system for optimizing resource allocation whereby (See the rejections of claims 1, 11, and 21)

- *Output Expressions are produced comprising a representation, said representation is selected from the group consisting of*
 - *a showing EAV trends of a particular Population, having a eligibility criteria and formed from individual units each meeting at least one defined criteria, said trends are expressed in Cohort time segments* (Applicant on page 18, line 19 states that EAV may be, but are not limited to, a quantity count, dollar value, number of products, and number of events, etc. hence, corresponds to a value of interest expressed in Cohort time segments. But a cohort time segment is the time segment a particular entity (unit of analysis) satisfies a given criterion (see e.g., page 2 starting on line 10). McCartney, in at least [0004] describes the burden of "track[ing] every resource that is used in respect of every patients by predetermined case types [] during the

time that the patient is in the care of the health care provider." Thus, 'predetermined case types' associated with certain defined time periods corresponds to *cohort time segments* and the notion of tracking resources used is a form of *showing EAV trends*. Also, McCartney, in at least [0003] describes values and costs which correspond to *EAV* and describes trends which correspond to *cohort time trends of a defined population with congestive heart failure when subdivided by a fixed categorical variable* (Application page 4, line 5)); McCartney does not specifically include the following limitations, but Wong, as shown does.

- said trends are expressed in Cohort time segments *based on a Start Time wherein each individual unit meets all of the eligibility criteria to be included into the Population* (See rejection of claim 1. Examiner takes **Official Notice** that it is old and well-known as well as common place in the medical sciences to determine the start time (or date) associated with the beginning of a certain condition or treatment regimen or other time-based event.);
- *a showing NNT trends of a particular Population, per CATVAR values which are compared to each other* (Applicant on page 4, line 4 refers to *cohort time trends of a defined population with congestive heart failure when subdivided by a fixed categorical variable* where *NNT trends* corresponds to trends of the 'number needed to target' for improving

resource allocation. Wong, in at least [0002] describes his invention in terms of “targeted interventions” relative to congestive heart failure patients and further describes “event level information” and prediction models (Wong [abstract]) and “...a time-line diagram...” (figure 6B) pertaining to a series of events, hence a trend associated with targeted interventions which corresponds to *NNT trends of a particular Population.*)

McCartney and Wong both teach systems and methods for the analysis and management of medical conditions which involve time-based analysis. Wong, in particular, teaches how to segregate patients into appropriate cohorts that share similar onset events using ‘time windows’. Such time based analyses, as suggested in the Examiner’s **Official Notice** above, provides insight into the effectiveness of decisions or the time evolution of characteristics associated with either a patient or other entity. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the features of McCartney and Wong because such time based analyses helps to identify certain situations (e.g., patients at-risk Wong [2,40]) and achieves cost savings (Wong[2,40]).

Conclusion

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Mark A. Fleischer** whose telephone number is

571.270.3925. The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **Bradley Bayat** whose telephone number is **571.272.6704** may be contacted.

The prior art made of record and not relied upon that is considered pertinent to applicant's disclosure are:

- Schloss, *et al.* (US 5692125 A) describes and/or discloses a system and methods to analyze resource allocation decisions where there are fixed and dynamic conditions.
- Gekus, R. "Methods for estimating the AIDS incubation time distribution when date of seroconversion is censored" (2001) describes use of cohort studies with respect to time-based events.
- Gordin, Fred, *et al.* "Early Manifestations of Disseminated Mycobacterium avium Complex Disease: A Prospective Evaluation" also describes use of cohort studies with respect to time-based events.
- Goggins, William, *et al.* "Applying The Cox Proportional Hazards Model For Analysis Of Latency Data With Interval Censoring" also describes use of cohort studies with respect to time-based events.
- Kim, S. *et al.* "Strategies for Cohort Sampling Under the Cox Proportional Hazards Model, Application to an AIDS Clinical Trial" also describes use of cohort studies with respect to time-based events.

Art Unit: 3624

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/Mark A Fleischer/
Examiner, Art Unit 3624

6 October 2008

/Bradley B Bayat/

Supervisory Patent Examiner, Art Unit 3623